



# FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

WILDLAND FIRE  
CONTROL

**TOPIC:** CONSTRUCTING HANDLINE

**TIME FRAME:** 1:00

**LEVEL OF INSTRUCTION:** Level II

**BEHAVIORAL OBJECTIVE:**

*Condition:* Given a written quiz

*Behavior:* The student will confirm a knowledge of the positions and procedures involved with constructing handline

*Standard:* With a minimum 70% accuracy

**MATERIALS NEEDED:**

- Writing board with markers/erasers
- Appropriate audio visual equipment and screen
- Topic Quiz

**REFERENCES:**

- CDF Fire Crew Captain – Fire Crew Operations
- CDF Fire Protection Training Handbook 4300

**PREPARATION:**

During this lesson, you will be using information from previous lessons and gaining new information to form the fundamentals of constructing handline. Handline construction is the basic operation of the fire crew.



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PRESENTATION	APPLICATION
<p><b>I. OVERVIEW</b></p> <p>A. Crew organization</p> <ol style="list-style-type: none"><li>1. Cutting section</li><li>2. Scraping section</li><li>3. Tool-up procedures</li></ol> <p>B. Attack methods</p> <ol style="list-style-type: none"><li>1. Direct</li><li>2. Indirect<ol style="list-style-type: none"><li>a) Parallel</li></ol></li></ol> <p>C. Safety</p> <ol style="list-style-type: none"><li>1. Firefighting</li><li>2. Working around other resources</li><li>3. Falling and rolling material</li><li>4. Pacing for sustained production</li></ol> <p><b>II. BRUSH HOOK/ SAW OPERATIONS CUTTING TOOLS</b></p> <p>A. Brush hooks/saws</p> <ol style="list-style-type: none"><li>1. Front half of the cutting section</li><li>2. First Brush Hook<ol style="list-style-type: none"><li>a) Also known as<ol style="list-style-type: none"><li>1) First Hook</li><li>2) Lead Hook</li></ol></li><li>b) Follows instructions from fire captain</li></ol></li></ol>	



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<ul style="list-style-type: none"> <li>c) Locates line               <ul style="list-style-type: none"> <li>1) Direct attack                   <ul style="list-style-type: none"> <li>• On fire's edge</li> <li>• Straight as possible</li> </ul> </li> <li>2) Indirect attack                   <ul style="list-style-type: none"> <li>• Utilize fire barriers</li> </ul> </li> </ul> </li> <li>d) Cuts brush wide enough to walk through               <ul style="list-style-type: none"> <li>1) Locating line as instructed by the fire captain</li> <li>2) Usually, brush hook operators dispose of their own brush (pulling)                   <ul style="list-style-type: none"> <li>• Occasionally, second hook pulls for first hook and fourth hook pulls for third</li> </ul> </li> </ul> </li> <li>3. Saw team               <ul style="list-style-type: none"> <li>a) Consist of sawyer and puller</li> <li>b) Any follow-up brush hooks widen and improve the established trail                   <ul style="list-style-type: none"> <li>1) To width specified by the fire captain</li> <li>2) The object is to take some and leave some</li> <li>3) Each person cutting equal amounts                       <ul style="list-style-type: none"> <li>• Teamwork will get the job done</li> </ul> </li> <li>4) Maintain 10' spacing between workers</li> </ul> </li> </ul> </li> </ul>	



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<p><b>III. BRUSH DISPOSAL OPERATIONS</b></p> <p>A. Cut brush must be removed from the line</p> <ol style="list-style-type: none"><li>1. Burned or burning material is scattered into burn<ol style="list-style-type: none"><li>a) Not on hot material</li></ol></li><li>2. Unburned material is scattered into green</li></ol> <p>B. Toss method</p> <ol style="list-style-type: none"><li>1. Surrounding brush low or sparse</li><li>2. Throw and scatter cut brush from where it is cut</li></ol> <p>C. Window method</p> <ol style="list-style-type: none"><li>1. Surrounding brush too high and dense for toss method</li><li>2. Brush is pulled to an opening for disposal</li><li>3. Opening in surrounding brush may be constructed</li></ol> <p>D. Bank method</p> <ol style="list-style-type: none"><li>1. Surrounding brush is too high and dense for toss or window methods</li><li>2. A double width line is cut</li><li>3. All brush is compacted against the standing brush on the side away from the burn</li></ol> <p><b>IV. PULASKI OPERATIONS</b></p> <p>A. Normally follow behind the last saw or hook</p> <p>B. Remove stumps and stobs left by hooks</p>	



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<ul style="list-style-type: none"> <li>1. So the McLeods can scrape the ground</li> <li>C. Remove roots that cross the line</li> <li>D. Start trenching operations where needed</li> <li>E. Occasional assignments               <ul style="list-style-type: none"> <li>1. Work in front of Lead Hook                   <ul style="list-style-type: none"> <li>a) To cut down heavier fuels</li> </ul> </li> <li>2. Work with shovels to loosen dirt                   <ul style="list-style-type: none"> <li>a) Trenching</li> <li>b) Dirt throwing</li> </ul> </li> </ul> </li> </ul> <p><b>V. MCLEOD OPERATIONS</b></p> <ul style="list-style-type: none"> <li>A. McLeods normally follow Pulaskis               <ul style="list-style-type: none"> <li>1. Job is to rake away the litter and duff and scrape away the fine fuel                   <ul style="list-style-type: none"> <li>a) To mineral soil (bare dirt)</li> <li>b) Must be continuous</li> </ul> </li> </ul> </li> <li>B. Use tines to rake away loose material</li> <li>C. Use cutting edge to remove remainder</li> <li>D. Break up wood rat nests</li> <li>E. Scatter windrows</li> <li>F. Maintain 10' spacing between workers</li> </ul> <p><b>VI. SCRAPING TOOLS</b></p> <ul style="list-style-type: none"> <li>A. Shovels/brooms</li> </ul>	



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<p>B. Normally follow the McLeods</p> <p>C. Finish line</p> <ol style="list-style-type: none"> <li>1. Fuel missed by McLeods               <ol style="list-style-type: none"> <li>a) Between rocks, etc.</li> </ol> </li> <li>2. Scatter windrows of scraped material               <ol style="list-style-type: none"> <li>a) Away from control line</li> </ol> </li> <li>3. Throw or carry hot material back into burn</li> <li>4. Complete undercut line               <ol style="list-style-type: none"> <li>a) Clean out trenches</li> <li>b) Finish berms</li> </ol> </li> <li>5. Attack live flame with dirt</li> <li>6. Inspect for line completion               <ol style="list-style-type: none"> <li>a) Width</li> <li>b) Scraped clean</li> <li>c) Adequate trenches</li> <li>d) Canopy considerations</li> </ol> </li> </ol> <p><b>VII. UNDERCUT LINE</b></p> <p>A. Control line constructed across the face of a slope and below the fire's edge</p> <p><b>NOTE:</b> Explain when a fire situation calls for an undercut line</p> <ol style="list-style-type: none"> <li>1. Usually constructed double the normal width               <ol style="list-style-type: none"> <li>a) Crossing drainages</li> </ol> </li> </ol>	



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<ul style="list-style-type: none"> <li>b) Just over a ridge top</li> <li>c) Flanking the fire up a sidehill</li> </ul> <p><b>VIII. TRENCHING</b></p> <p>A. A trench is a ditch (and berm) on a slope below a fire, generally as part of a control line, designed to catch rolling firebrands</p> <ul style="list-style-type: none"> <li>1. Wherever a ball dropped in the burn would roll into the green</li> <li>2. Must have adequate width, depth, and shape to contain all rolling material</li> <li>3. Must be free of fuel</li> <li>4. A berm is the raised edge of the trench <ul style="list-style-type: none"> <li>a) Downhill side</li> <li>b) Constructed of rocks and dirt</li> <li>c) Should have near vertical face on uphill side <ul style="list-style-type: none"> <li>1) To stop rolling material</li> </ul> </li> <li>d) No walking on berm</li> </ul> </li> <li>5. Whenever possible construct trenches so rolling material is redirected back into burn or contained in the trench</li> </ul> <p>B. Safety considerations</p> <ul style="list-style-type: none"> <li>1. Sidehill footing while swinging tools</li> <li>2. Extra work spacing</li> <li>3. Rolling rocks</li> </ul>	



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<p>4. Rolling hot material starting spot fires below the crew</p> <p><b>IX. REVIEW</b></p> <p>A. Question the trainees on safety issues</p> <ol style="list-style-type: none"> <li>1. Ten standard orders</li> <li>2. Eighteen situations</li> <li>3. LCES</li> <li>4. Pacing yourself</li> <li>5. Falling and rolling material</li> </ol> <p>B. Review concepts</p> <ol style="list-style-type: none"> <li>1. Section responsibilities</li> <li>2. Individual responsibilities</li> </ol> <p>C. Stress importance of technique and teamwork</p> <p>D. Speed will come with practice</p>	<p>Administer Topic Quiz</p>





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## ***SUMMARY:***

Line construction requires teamwork. A firm understanding of how crew members function together to construct handline via crew organization, and a knowledge of attack methods and safe operating procedures will make a line builder safer and more efficient.

## ***EVALUATION:***

The student will complete a written quiz at a time determined by the instructor.

## ***ASSIGNMENT:***

Review your notes in preparation for the upcoming quiz. Study for the next session.